AMENDMENTS TO THE DRAWINGS:

With this paper applicants provide replacement drawings for pages 2, 4, 5, 7, 9, 11, 13-19, 21, 24-26, 29, 33 and 35-40. A description of the changes made to the drawings appears below.

AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph 58 in the body of the specification with the following paragraph:

[0058] These new security devices are expensive capital equipment items. There is therefore a desire on the part of administrators to purchase as little equipment as possible to meet security needs under average conditions. It is therefore desirable to operate that equipment near capacity, and not purchase redundant systems. Under those conditions, it becomes critical to keep that equipment in operation, as a failure may lead to additional passenger delays or gaps in important security surveillance.

Please replace the paragraph 62 in the body of the specification with the following paragraph:

[0062] A UPQ system not only conditions power, as just described, but also provides a backup supply in the event of input power failure. In the example of figure 14, the 170 VDC is supplied to a battery charger, which charges 1 or more batteries. The battery power is supplied to a separate DC to DC regulating inverter, which supplies the second stage DC power in the event of power failure from the input power supply. Provision may also be made to charge batteries from an external supply, or supply the second stage DC power to the DC to AC inverter.

Please replace the paragraph 67 in the body of the specification with the following paragraph:

[0067] The exemplary UPQ systems may also be started using internal or external batteries without an AC power source connected. Current limiting circuitry is included to protect from high inrush currents associated with DC battery connections on a dry DC bus. Those systems also include a CPU-controlled battery charger. That charger boots the charge to the batteries they are discharged to a minimum voltage, which may be about 2V/cell. This boost charge allows the batteries to charge at a faster rate while avoiding exposing the batteries to high charge currents. The charger may boost charge the batteries for several hours each month automatically if desired. During the boost charge cycle the temperature may be monitored, the charger keeping the ambient temperature below a threshold, for example 35 degrees centigrade.

Please replace the paragraph 70 in the body of the specification with the following paragraph:

[0070] A first exemplary Uninterruptible Power Quality (UPQ) unit will now be described having a 30 kVA capacity and being suitable for supplying continuous power to a CTX 9000 DSi™ explosive detection system available from InVision Technologies Inc. of Newark, California, United States. The CTX 9000 Dsi™ requires high quality power, not generally suppliable from an auxiliary generator. That UPQ unit includes power electronics and batteries in a very compact and self-contained package.

Please replace the table following paragraph 78 with the following table:

General:	
Input current (max Amp)	23
Output power capacity (VA)	10000

Output power capacity (watts)	8000
Output current (peak Amp) 3 phase output	43
UPQ power conditioning topology	Five-stage / true on-line sine wave
Nominal output voltage range (3 phase)	480V
Output frequency range	50/60 Hz
Output frequency tracking	5% of the input frequency
Output power factor	>.9
Output waveform	High resolution pure sine wave
Input power factor (12 pulse rectifier)	>.85
Input impedance of entire system	750m ohm
Input to output impedance	<5%
Remote power management	Yes
Outlets	Terminal block
Voltage Regulation & Frequency	
Input frequency	45-65 Hz for inverter phase lock frequency range
Input range:	307 to 520 VAC
- full load without using battery	± 20%
- half load without using battery	± 25%
Output voltage regulation	±1%
Isolation	
Input to output isolation	Dielectric strength 5kv, 120db common mode attenuation
Common-mode noise reduction	Yes
Normal-mode noise reduction	Yes
Suppression	
IEEE 587/ANSI 62.41	Yes
surge let-through (North America)	Yes
IEEE 587/ANSI 62.41	Yes
surge let-through (international)	Yes
Joules (energy absorption)	2200

TVSS MOV Joule Rating	765 Joules per phase
TVSS Low pass filter	750Hz
Peak surge current	20000A
Multi-stage protection	Yes
Reverse inverter impulse protection	54 Joules without batteries
IEC	62040-2
FCC	Class A
EN 60610 (leakage current)	< 1mA
Conditioning	Yes
Output THD (linear Load)	<2%
Output frequency regulation	50/60 Hz ± 0.1 Hz
Current THD (12 pulse rectifier)	Maximum of 9%
Input frequency range	50/60 Hz ± 7 Hz
Input power factor correction	Yes
High Frequency On-Line Inverter	
Inverter design	Full Bridge
Inverter driver frequency	20 KHz
Inverter regulation	50/60 Hz ± 0.1Hz
Overload capacity	>110%
Crest factor	3:1
Transfer time	Zero
Overall system efficiency	93%
Rectifier efficiency	98%
Inverter efficiency	>93%
System efficiency in battery backup mode	93%
Static switch efficiency	99.5%
UPQ to bypass/bypass to UPQ	Zero cross transfer, less than 4 mSec. (2 mSec. Minimum)
Rectifier	
12 Pulse	6.4Khz pulse width, 80 ps for 1.7ms around 11 pulses
Static Switch	

Voltage range	173 VAC - 277 VAC (line to neutral)
Frequency range	45 - 55 Hz / 55 - 65 Hz
Transfer time - main to inverter	0 ms
Transfer time - inverter to main	0 ms
Transfer time - overload 100%	30 seconds
Transfer time - overload 300%	1 second
Battery (standard configurations)	
Full load run time (58 pcs. internal battery pack)	<10 minutes
Half load run time (58 pcs. internal battery pack)	>15 minutes
Extended battery packs	Cabinet
Recharge time	5 to 8 hrs
Battery charger	Constant voltage with current limit
Maximum recharge current (amps)	15
Boost charge	410 VDC / 415 VDC
Float charge	396 VDC / 410 VDC
Battery low voltage	320 VDC / 305 VDC
Battery low stop voltage	295 VDC / 285 VDC
Hot-swappable	Yes
Temperature to altitude	
Operating Temperature	0 to 50 c
Humidity	0% - 90% Non Condensing
Altitude	Less than 2000 Meters above sea level
De-rating temperature (c) altitude	4deg/1000m
Physical	
Q-LS WxDxH in mm	550x800xl600
Q-LS WxDxH in inches	21.7x3l.5x63
Q-LS weight in Kg. (with internal battery pack)	659.39
Q-LS weight in lbs. (with internal battery pack)	1453.7
Q-LS battery pack A WxDxH in mm	550x800xl600

Q-LS battery pack A WxDxH in inches	21.7x31.5x63
Q-LS battery pack A weight in Kg.	360
Q-LS battery pack A weight in lbs.	793.66
Q-LS battery pack B WxDxH in mm	550x800xl600
Q-LS battery pack B WxDxH in inches	21.7x31.5x63
Q-LS battery pack B weight in Kg.	720
Q-LS battery pack B weight in lbs.	1587.3
Q-LS battery pack C WxDxH in mm	550x800xl600
Q-LS battery pack C WxDxH in inches	21.7x31.5x63
Q-LS battery pack C weight in Kg.	961.75
Q-LS battery pack C weight in lbs.	2120.3

Please replace the abstract with the following paragraph:

Disclosed herein are power conditioning systems for providing filtered, clean and reliable power to sensitive electrical or electronic loads and further to provide battery backed power to those loads. Further disclosed herein are such power conditioning systems for supplying clean power to security scanning equipment and to infant life support devices. One of the systems disclosed herein supports a 30kVA combined load and includes a cabinet, a passive input circuit receiving three phase AC power, an AC to DC converter including a 12 pulse rectifier, a regulating DC to DC converter, a high frequency DC to AC inverter utilizing PWM at 50 kHz, an output passive filter, two banks of batteries permitting hot-swappable battery replacement and capable of supplying power for at least 10 minutes at full capacity load.

VERSION OF AMENDMENTS TO THE SPECIFICATION SHOWING CHANGES:

[0058] These new security devices are expensive capital equipment items. There is therefore a desire on the part of administrators to purchase as little equipment as possible to meet security needs under average conditions. It is therefore desirable to operate that equipment near capacity, and not purchase redundant systems. Under those conditions, it becomes critical to keep that equipment in operation, as a failure may lead to additional passenger delays or gaps in important security ~~surveillance~~ surveillance.

[0062] A UPQ system not only conditions power, as just described, but also provides a backup supply in the event of input power failure. In the example of figure 14, the 170 VDC is supplied to a battery charger, which charges 1 or more batteries. The battery power is supplied to a separate DC to DC regulating inverter, which supplies the second stage DC power in the event of power failure from the ~~batteries~~ input power supply. Provision may also be made to charge batteries from an external supply, or supply the second stage DC power to the DC to AC inverter.

[0067] The exemplary UPQ systems may also be started using internal or external batteries without an AC power source connected. Current limiting circuitry is included to protect from high inrush currents associated with DC battery connections on a dry DC bus. Those systems also include a CPU-controlled battery charger. That charger boots the charge to the batteries ~~if the battery is degraded~~ they are discharged to a minimum voltage, which may be about 2V/cell. This boost charge allows the batteries to charge at a faster rate while avoiding exposing the batteries to high charge currents. The charger may boost charge the batteries for several hours each month automatically if desired. During the boost charge cycle the temperature may be monitored, the charger keeping the ambient temperature below a threshold, for example 35 degrees centigrade.

[0070] A first exemplary Uninterruptible Power Quality (UPQ) unit will now be described having a 30 kVA capacity and being suitable for supplying continuous power to a CTX 9000 DSi™ explosive detection system available from InVision Technologies Inc. of Newark, California, United States. The CTX 9000 DsiTM™ requires high quality power, not generally suppliable from an ~~auxilliary~~ auxiliary generator. That UPQ unit includes power electronics ~~in~~ and batteries in a very compact and self-contained package.

In the table following paragraph 78:

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Outlets	Terminal block
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Output voltage regulation	±1%
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Input to output isolation	Dielectric strength 5kv, 120db common mode ~~aftenuation~~ attenuation
Common-mode noise reduction	Yes
Normal-mode noise reduction	Yes
Suppression	
IEEE 587/ANSI 62.41	Yes
surge let-through (North America)	Yes
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Joules (energy absorption)	2200
TVSS MOV Joule Rating	765 Joules per phase
TVSS Low pass filter	750Hz
Peak surge current	20000A
Multi-stage protection	Yes
Reverse inverter impulse protection	54 Joules without batteries
IEC	62040-2
FCC	Class A
EN 60610 (leakage current)	< 1mA
Conditioning	Yes
Output THD (linear Load)	<2%
Output frequency regulation	50/60 Hz ± 0.1 Hz
Current THD (12 pulse rectifier)	Maximum of 9%
Input frequency range	50/60 Hz ± 7 Hz
Input power factor correction	Yes
High Frequency On-Line Inverter	
Inverter design	Full Bridge
Inverter driver frequency	20 KHz
Inverter regulation	~~50160~~ 50/60 Hz ± 0.1Hz
Overload capacity	>110%

Crest factor	3:1
Transfer time	Zero
Overall system efficiency	93%
Rectifier efficiency	98%
Inverter efficiency	>93%
System efficiency in battery backup mode	93%
Static switch efficiency	99.5%
UPQ to bypass/bypass to UPQ	Zero cross transfer, less than 4 mSec. (2 mSec. Minimum)
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Maximum recharge current (amps)	15
Boost charge	410 VDC / 415 VDC
Float charge	396 VDC / 410 VDC
Battery low voltage	320 VDC / 305 VDC
Battery low stop voltage	295 VDC / 285 VDC
Hot-swappable	Yes

Temperature to altitude	
Operating Temperature	0 to 50 c
Humidity	0% - 90% Non Condensing
Altitude	Less than 2000 Meters above sea level
De-rating temperature (c) altitude	4deg/1000m
Physical	
Q-LS WxDxH in mm	550x800xl600
Q-LS WxDxH in inches	21.7x3l.5x63
Q-LS weight in Kg. (with internal battery pack)	659.39
Q-LS weight in lbs. (with internal battery pack)	1453.7
Q-LS battery pack A WxDxH in mm	550x800xl600
Q-LS battery pack A WxDxH in inches	21.7x3l.5x63
Q-LS battery pack A weight in Kg.	360
Q-LS battery pack A weight in lbs.	793.66
Q-LS battery pack B WxDxH in mm	550x800xl600
Q-LS battery pack B WxDxH in inches	21.7x31.5x63
Q-LS battery pack B weight in Kg.	720
Q-LS battery pack B weight in lbs.	1587.3
Q-LS battery pack C WxDxH in mm	550x800xl600
Q-LS battery pack C WxDxH in inches	21.7x3l.5x63
Q-LS battery pack C weight in Kg.	961.75
Q-LS battery pack C weight in lbs.	2120.3